



Changes in gambling behaviors among young adults in Rhode Island, 2022–2024

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ABSTRACT

Background: The rapid expansion of legalized sports betting and mobile gambling in the U.S. has transformed how gambling is accessed and experienced. Young adults are particularly vulnerable to these changes; however, limited research has examined how gambling behaviors are shifting across multiple modalities during periods of expanding gambling availability.

Methods: We analyzed repeated cross-sectional data from the Rhode Island Young Adult Survey (RIYAS) collected in 2022 ($n = 1,022$) and 2024 ($n = 1,008$) among individuals aged 18–25 years. Outcomes included past-year participation in specific gambling behaviors, positive BBGS (Brief Biosocial Gambling Screen) screens, and overall gambling involvement measured as the number of gambling types endorsed. Multivariable logistic regression models estimated adjusted odds ratios for differences in individual gambling behaviors between survey waves, and Poisson/zero-inflated Poisson models estimated differences in gambling involvement.

Results: Gambling participation did not differ significantly between 2022 and 2024. However, among individuals reporting gambling, participation increased in several activities, including lottery tickets (AOR = 1.36, 95 % CI: 1.01–1.83), raffle gambling (AOR = 1.40, 95 % CI: 1.05–1.88), sports betting (AOR = 1.65, 95 % CI: 1.07–2.56), casino slot machines (AOR = 2.99, 95 % CI: 2.10–4.27), other slot machines (AOR = 2.30, 95 % CI: 1.23–4.33), and app-based gambling (AOR = 2.14, 95 % CI: 1.38–3.32). The number of gambling types endorsed increased (IRR = 1.28, 95 % CI: 1.16–1.41). Positive BBGS screens were more common in 2024 but not statistically significant after adjustment.

Conclusions: Findings suggest while overall gambling participation remained stable, engagement across multiple and mobile-based gambling activities increased between survey waves, potentially signaling emerging risk. Increasing diversification and digitalization of gambling behaviors requires continued surveillance and public health strategies addressing emerging gambling environments.

1. Introduction

Gambling is increasingly recognized as a significant public health concern due to its widespread availability and potential for financial, psychological, and social harm. The rapid expansion of legalized sports betting and mobile gambling platforms has fundamentally transformed how and where gambling occurs, embedding betting within everyday digital environments and reducing traditional barriers to participation (Wardle et al., 2021; Xu et al., 2025). Despite these shifts, limited research has examined short-term changes across multiple gambling modalities in the immediate post-legalization period, particularly

among young adults within state-level policy contexts.

In 2018, the United States repealed the Professional and Amateur Sports Protection Act (PASPA), allowing states to legalize sports betting (Murphy v. NCAA, 2018). Since that decision, sports betting has expanded rapidly across the country, with many states permitting gambling through mobile apps and online sportsbooks (Xu et al., 2025). This expansion has been accompanied by measurable changes in participation patterns. Online gambling participation among U.S. adults increased substantially from 15 % in 2018 to 25 % in 2021 and remained elevated at 22 % in 2024 (National Council on Problem Gambling, 2024). Among young adults, engagement appears particularly high. A

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2023 NCAA survey of individuals aged 18 to 22 years found that 58 % engaged in at least one sports betting activity and 16 % reported at least one risky gambling behavior, with 28 % identifying mobile applications as their preferred betting method (Heath, 2023). These findings suggest that gambling is becoming increasingly integrated into routine digital behaviors.

Sports betting may represent a particularly high-risk form of gambling. Prior research suggests that individuals who engage in sports betting report greater overall gambling involvement and higher risk of problem gambling compared with those who participate in other gambling forms (Grubbs & Kraus, 2023). As access to mobile sports betting expands, it is important to examine whether broader patterns of gambling behavior are also changing.

Young adults represent a critical population for examining these changes. Evidence suggests that 15 % of adults aged 18–34 meet at least one criterion for problem gambling, compared with approximately 2 % among adults aged 55 and older (National Council on Problem Gambling, 2024). Young adults also are disproportionately exposed to gambling-related content through social media, targeted digital advertising, and sports media. Exposure is common; over half of young adults report seeing gambling advertisements, and more than half of those individuals indicated that such exposure increased their likelihood of betting (Heath, 2023). Developmental factors such as impulsivity, sensation-seeking, and peer influence may further increase vulnerability to risky gambling during this life stage, while financial instability, such as student debt and limited income, may heighten the potential harms associated with gambling (Oksanen et al., 2021; Chamberlain et al., 2017). Collectively, these factors suggest that young adults may be particularly susceptible to gambling-related harm in the current digital gambling environment.

Rhode Island provides a useful setting in which to examine gambling behaviors during a period of rapidly expanding gambling availability. Following the repeal of PASPA, Rhode Island legalized sports betting in 2018 and launched retail and mobile sports betting in 2019 (Fayerman-Hansen, 2024). Rhode Island's gambling market is highly centralized, with casino gambling offered through the state's two casinos and online gambling available through state-authorized platforms. Lottery products, casino gambling, retail sports betting, and mobile sports betting were legally available throughout the study period. However, online and mobile casino gambling was not legalized until March 2024 (Shirley, 2026), further expanding gambling access beyond traditional casino venues. Legal age requirements also vary across gambling activities, with most casino gambling and sports betting restricted to individuals aged 21 years or older. Together, these policy and regulatory changes provide a unique opportunity to examine gambling behaviors during a period of evolving gambling availability and accessibility.

Despite the rapid expansion and normalization of sports betting and online gambling, several gaps remain in the existing literature. First, few studies examine changes across multiple gambling behaviors simultaneously, especially among young adults during periods of expanding gambling availability. Second, state-level surveillance data are limited, despite substantial variation in policy environments across states. To address these gaps, this study used repeated cross-sectional data from the Rhode Island Young Adult Survey (RIYAS) collected in 2022 and 2024 to assess differences in gambling behaviors between survey waves. Online and mobile casino gambling was legalized in Rhode Island in March 2024, between the two survey waves. Because gambling behaviors were assessed over the previous 12 months, the 2024 survey captured behaviors occurring both before and after this policy change. The present study examines differences in gambling behaviors during a period of expanding gambling availability rather than the direct effects of legalization. Specifically, this study assessed changes in (1) participation in specific gambling behaviors, (2) gambling-related problems indicated by the Brief Biosocial Gambling Screen, and (3) overall gambling involvement, measured as the number of gambling types endorsed. Understanding these patterns can inform public health

surveillance, prevention strategies, and policy development in rapidly evolving gambling environments.

2. Methods

2.1. Data

The Rhode Island Young Adult Survey (RIYAS) is a cross-sectional, self-reported, web-based survey conducted by the Rhode Island Department of Behavioral Healthcare, Developmental Disabilities, & Hospitals. This study used data from the 2022 and 2024 RIYAS, which were administered using Qualtrics and collected from May through August 2022 and June through September 2024. Eligible participants were those who lived in Rhode Island for at least part of the year and were aged 18 to 25 years. Participants were recruited through paid social media ads (eg. Twitter, Facebook, Snapchat, Instagram, or Spotify) as well as outreach through flyers and emails to students at higher education institutions. Participants were compensated with a \$10 gift card for completing the survey. To maximize comparability across survey waves, the 2022 and 2024 RIYAS employed comparable eligibility criteria, recruitment strategies, survey administration platform, incentive structure, data-cleaning procedures, and gambling-related survey items. Identical item wording was used for all gambling measures included in the present analyses. Following application of eligibility criteria and data-cleaning procedures, analytic samples were generated for each survey wave. No weighting or post-stratification procedures were applied. A total of $n = 1,022$ and $n = 1,008$ young adults were recruited in 2022 and 2024, respectively ($N_{total} = 2,030$). This included 414 ever gamblers from the 2022 survey, and 389 ever gamblers from the 2024 survey ($N_{gamblers} = 803$). Because gambling behaviors were assessed over the past 12 months, analyses of gambling types reflect recent participation regardless of lifetime gambling status—and analyses were conducted among all young adults and separately among lifetime gamblers. All participants from both surveys provided electronic informed consent, and the study was approved by the local Institutional Review Board.

2.2. Measures

Ever gamblers were defined through the question: *Have you ever participated in gambling activities? This includes betting, lottery/scratch/raffle tickets, poker machines, gaming tables, and online gambling.* Participants who responded *Yes, more than a month ago* or *Yes, in the past month* were considered ever gamblers. Types of gambling were assessed through a series of questions. This included reporting within the last 12 months: 1) Lottery ticket: *Have you bought a lottery ticket such as Tattslotto, Powerball, or Keno?* 2) Instant scratch ticket: *Have you bought an instant scratch ticket?* 3) Raffle: *Have you bought raffle or fundraising tickets?* 4) Sports Betting: *Have you bet on sports?* 5) Casino gaming tables: *Have you bet on gaming tables at a casino?* 6) Casino slot machines: *Played poker machines at a casino?* 7) Other slot machines: *Played poker machines at a pub, hotel, or sporting club?* 8) Betting on arcade/video games: *Have you bet on arcade or video games?* 9) Internet gambling: *Have you gambled on the internet?* and 10) App gambling: *Have you gambled on an app?* Participants responded with either *Yes* or *No* to each gambling type.

The total number of gambling types a participant engaged in was assessed using a count variable. Each gambling type was assigned a value of 1 and summed to create a total score. The potential range for this variable was 0 to 10, with a score of 0 indicating none of these gambling types in the past 12 months and 10 indicating past year participation in every gambling type. The use of a count variable in this manner has been established in other gambling research (Welte et al., 2004). Our measure is conceptually consistent with gambling breadth, defined as participation across multiple gambling activities. Prior work suggests greater gambling breadth is associated with elevated gambling-

related harm independent of frequency (LePlante et al., 2014; Phillips et al., 2013; Mazar et al., 2020).

The Brief Biosocial Gambling Screen (BBGS) is a valid and reliable screening tool to identify problem gambling behaviors (Gebauer et al., 2010). Participants responded with either *Yes* or *No* to each item. Participants endorsing one or more BBGS items were classified as having a positive BBGS screen. Questions included: *During the past 12 months: Have you become restless, irritable, or anxious when trying to stop/cut down on gambling?*; *Have you tried to keep your family or friends from knowing how much you gambled?*; and *Did you have such financial trouble that you had to get help with living expenses from family, friends, or welfare?*

Several demographic covariates were measured including age in years, sexual/gender identity, race/ethnicity, subjective social status, employment status, and student status. Sexual/gender identity was categorized as cisgender heterosexual male, cisgender heterosexual female, and sexual or gender minority. Race/ethnicity was categorized as White, non-Hispanic, Black, non-Hispanic, Hispanic, Asian, non-Hispanic, and Other/Multiracial, non-Hispanic. The Other/Multiracial category included participants identifying as Native American or Alaskan Native, Native Hawaiian or Other Pacific Islander, different identity not listed, or more than one race. Subjective social status was assessed using the MacArthur Scale of Subjective Social Status. This self-reported measure asks respondents to rate their perceived standing in their community from 1 “worst off” to 10 “best off” (Adler et al., 2000).

2.3. Statistical analysis

Analyses were conducted in three stages. First, descriptive statistics were calculated to characterize sociodemographic characteristics of young adults and young adult ever gamblers in the 2022 and 2024 RIYAS samples. Differences by survey year were assessed using chi-square tests for categorical variables and two-sample t-tests for continuous variables.

Second, changes in the prevalence of individual gambling behaviors between survey years were assessed using chi-square tests, except for differences in the count of gambling types, which was assessed using the non-parametric Wilcoxon rank-sum test due to the non-normality of the count variable. Multivariable logistic regression models were then estimated among young adults and young adult ever gamblers to examine associations between survey year (2024 vs 2022) and each gambling behavior while adjusting for potential confounders.

Third, because the gambling type count variable exhibited substantial zero inflation in the full sample, zero-inflated Poisson regression models were used. The presence of excess zeros was confirmed through inspection of the distribution and comparison of observed versus expected counts under a standard Poisson model. Standard Poisson regression models were estimated among ever gamblers because zero inflation was not a concern within that restricted sample. As a sensitivity analysis, the gambling breadth models were re-estimated after excluding internet gambling and app-based gambling from the gambling type count variable to evaluate whether potential overlap between gambling activities and access modalities influenced the findings.

Model assumptions were evaluated prior to analysis. Multicollinearity was assessed using variance inflation factors (VIFs). Model fit for the Poisson and zero-inflated Poisson models was evaluated using likelihood ratio chi-square ($LR \chi^2$) statistics and log-likelihood values, with these metrics used to assess the relative adequacy of the count model specifications.

All adjusted models controlled for age (continuous), race/ethnicity (categorical), sexual/gender identity (categorical), and subjective social status (continuous), selected a priori based on established associations with gambling behaviors (Kessler et al., 2008; Floyd et al., 2024; Grant & Chamberlain, 2023). Secondary analyses were conducted among participants reporting any lifetime gambling experience (‘ever gamblers’) to examine whether patterns differed among individuals with prior gambling involvement. Adjusted odds ratios (AORs) and incidence

rate ratios (IRRs) with 95 % confidence intervals (CIs) were reported. There were no missing data for variables included in the present analyses; therefore, no imputation procedures were required and all eligible participants were retained in the analytic models. Statistical significance was defined as a two-sided p-value < 0.05. All analyses were conducted using Stata, version 15 (StataCorp, 2017).

3. Results

A total of 2,030 young adults participated across survey years (2022: $n = 1,022$; 2024: $n = 1,008$), including 803 individuals reporting ever participating in gambling. Sociodemographic characteristics differed modestly between survey years. Among both the full and ever gambler samples, participants surveyed in 2024 were more likely to identify as cisgender heterosexual male and reported higher subjective social status compared with those surveyed in 2022 (Table 1). Mean age decreased in the full sample from 2022 to 2024 but did not among ever gamblers. Race/ethnicity distributions were similar across survey years. Between 2022 and 2024, overall gambling participation did not change among young adults, but participation increased across several gambling activities among young adult ever gamblers including lottery tickets, raffles, casino slot machines, sports betting, internet gambling, app-based gambling, and other slot machine gambling (Table 2). The largest increases were observed in casino slot machine and other slot machine participation. Among all young adults, there was not a significant increase in lottery and raffle gambling. Although unadjusted positive BBGS screen prevalence increased, this association was not statistically significant after adjustment.

Variance inflation factors indicated no evidence of problematic multicollinearity (all VIFs < 2.0). Compared with young adult ever gamblers surveyed in 2022, those surveyed in 2024 had significantly higher odds of lottery participation (AOR [95 %CI]: 1.36 [1.01, 1.83]), raffle gambling (AOR [95 %CI]: 1.40 [1.05, 1.88]), sports betting (AOR [95 %CI]: 1.65 [1.07, 2.56]), casino slot machine gambling (AOR [95 %CI]: 2.99 [2.10, 4.27]), other slot machine gambling (AOR [95 %CI]: 2.30 [1.23, 4.33]), and app-based gambling (AOR [95 %CI]: 2.14 [1.38, 3.32]) (Table 3).

Consistent with visual inspection of the count distribution, the gambling breadth variable exhibited substantial zero inflation in the full sample, supporting the use of a zero-inflated Poisson model. Models examining overall gambling involvement demonstrated a significant increase in the number of gambling types endorsed in 2024 relative to 2022. In adjusted analyses, young adults surveyed in 2024 engaged in approximately 28 % more types of gambling compared with those surveyed in 2022 (IRR = 1.28, 95 % CI: 1.16, 1.41, $p < 0.001$). Similar findings were observed among young adult ever gamblers only (IRR = 1.27, 95 % CI: 1.15, 1.39). Both models' fit statistics indicated the model significantly improved upon the null model, $LR\chi^2(9) = 85.66$, $p < 0.001$ (log-likelihood = -1,510.59) and $LR\chi^2(9) = 89.98$, $p < 0.001$ (log-likelihood = -1,513.57). Sensitivity analyses excluding internet gambling and app-based gambling from the gambling breadth measure produced substantively similar results. Participants surveyed in 2024 continued to report significantly greater gambling breadth than those surveyed in 2022 in both the full sample (IRR = 1.22, 95 % CI: 1.11, 1.36, $p < 0.001$) and among ever gamblers (IRR = 1.17, 95 % CI: 1.01, 1.36, $p = 0.038$), suggesting that the observed increase in gambling breadth was not driven by overlap between gambling activities and access modalities.

4. Discussion

This study examined changes in gambling behaviors among young adults in Rhode Island between 2022 and 2024 during a period of expanding gambling access. While overall gambling participation remained stable, engagement in specific types of gambling activities increased, particularly among individuals who reported ever gambling. Notably, participation in sports betting, app-based gambling, internet

Table 1
Descriptive statistics of young adults and young adult gamblers by survey year.

	Young Adults		p-value	Young Adult Gamblers		p-value
	2022 N = 1,022 (100 %)	2024 N = 1,008 (100 %)		2022 N = 414 (100 %)	2024 N = 389 (100 %)	
Sexual/Gender Identity			<0.001*			<0.001*
Cisgender Heterosexual Male	133 (13.0)	203 (20.1)		60 (14.5)	85 (21.9)	
Cisgender Heterosexual Female	456 (44.6)	363 (36.0)		181 (43.7)	116 (29.8)	
Sexual or Gender Minority	433 (42.4)	442 (43.9)		173 (41.8)	188 (48.3)	
Race/Ethnicity			0.055*			0.193*
White, non-Hispanic	623 (61.0)	579 (57.4)		288 (69.6)	258 (66.3)	
Black, non-Hispanic	56 (5.5)	77 (7.6)		14 (3.4)	16 (4.1)	
Hispanic	212 (20.7)	197 (19.5)		69 (16.7)	67 (17.2)	
Asian, non-Hispanic	62 (6.1)	86 (8.5)		17 (4.1)	30 (7.7)	
Other race, non-Hispanic	69 (6.8)	69 (6.9)		26 (6.3)	18 (4.6)	
Age [Mean (SE)]	21.3 (0.07)	21.1 (0.07)	0.028**	21.8 (0.10)	21.5 (0.11)	0.144**
Subjective Social Status [Mean (SE)]	5.0 (0.05)	5.7 (0.06)	<0.001**	5.05 (0.08)	5.60 (0.09)	<0.001**

NOTE: Bold indicates statistical significance; **two-sample *t*-test; *chi-square test.

Table 2
Gambling behaviors among young adults and young adult gamblers by survey year.

	Young Adults		p-value	Young Adult Gamblers		p-value
	2022 N = 1,022 (100 %)	2024 N = 1,008 (100 %)		2022 N = 414 (100 %)	2024 N = 389 (100 %)	
Ever Gambling	414 (40.6)	389 (38.6)	0.367*			
Instant Scratch Ticket	257 (25.2)	233 (23.1)	0.285*	257 (61.9)	233 (59.9)	0.527*
Raffle	153 (15.0)	172 (17.1)	0.199*	153 (36.9)	172 (44.2)	0.036*
Lottery Ticket	143 (14.0)	163 (16.2)	0.170*	143 (34.5)	163 (41.9)	0.032*
Casino Slot Machines	68 (6.7)	130 (12.9)	<0.001*	68 (16.4)	130 (33.4)	<0.001*
Sports Betting	45 (4.4)	72 (7.1)	0.008*	45 (10.8)	72 (18.5)	0.002*
App Gambling	39 (3.8)	71 (7.0)	0.001*	39 (9.4)	71 (18.3)	<0.001*
Casino Gaming Tables	61 (6.0)	69 (6.8)	0.420*	61 (14.7)	69 (17.7)	0.248*
Internet Gambling	26 (2.5)	49 (4.9)	0.006*	26 (6.3)	49 (12.6)	0.002*
Betting on Arcade/Video Games	48 (4.7)	41 (4.1)	0.489*	48 (11.6)	41 (10.5)	0.634*
Other Slot Machines	16 (1.6)	35 (3.5)	0.006*	16 (3.9)	35 (9.0)	0.003*
Positive BBGS Screen	26 (2.5)	43 (4.3)	0.032*	26 (6.28)	43 (11.05)	0.016*
Gambling Type Count [Median (IQR)]	0 (1)	0 (2)	0.651 ⁺	2 (2)	2 (3)	<0.001⁺

NOTE: Bold indicates statistical significance; *chi-square test; ⁺Wilcoxon rank-sum test.

gambling, and slot machine gambling increased, alongside a rise in the number of gambling types endorsed. These findings are consistent with increasing diversification and digitalization of gambling behaviors during a period of substantial change in the gambling environment.

The observed increases may reflect a combination of factors, including gradual expansion of gambling opportunities, broader post-pandemic changes in gambling participation, and increasing

Table 3
Adjusted odds of young adult gambling behaviors in 2024 relative to 2022.

	Young Adults		Young Adult Gamblers	
	AOR	95 % CI	AOR	95 % CI
Lottery Ticket	1.20	0.93, 1.55	1.36	1.01, 1.83
Instant Scratch Ticket	0.93	0.75, 1.14	0.95	0.71, 1.27
Raffle	1.19	0.93, 1.52	1.40	1.05, 1.88
Sports Betting	1.44	0.96, 2.18	1.65	1.07, 2.56
Casino Gaming Tables	1.08	0.74, 1.58	1.18	0.79, 1.76
Casino Slot Machines	2.33	1.69, 3.21	2.99	2.10, 4.27
Other Slot Machines	2.08	1.13, 3.87	2.30	1.23, 4.33
Betting on Arcade/Video Games	0.75	0.48, 1.17	0.70	0.44, 1.13
Internet Gambling	1.59	0.96, 2.65	1.69	1.00, 2.88
App Gambling	1.98	1.30, 3.01	2.14	1.38, 3.32
Positive BBGS Screen	1.54	0.93, 2.57	1.57	0.93, 2.67

NOTE: Multivariable logistic regression models controlled for age, race/ethnicity, sexual/gender identity, and subjective social status. AOR = adjusted odds ratio; CI = confidence interval.

integration of gambling into digital environments. Similar fluctuations in gambling indicators have been observed in other jurisdictions during the post-pandemic period, suggesting that changes in gambling behaviors may reflect broader societal and market trends in addition to state-specific policy developments. (National Council on Problem Gambling, 2023; Observatorio Español de las Drogas y las Adicciones, 2023; Hodgins & Stevens, 2021). Because the 2024 survey assessed past-year gambling behaviors, these findings should not be interpreted as direct effects of Rhode Island's March 2024 legalization of online and mobile casino gambling. Rather, they represent differences observed between the 2022 and 2024 RIYAS waves during a period of rapid change in gambling access and market offerings.

Although positive BBGS screens were more common in 2024 than in 2022, this association was not statistically significant after adjustment. Gambling-related harms often develop over longer periods, and the relatively short interval between survey waves may mean that increases in gambling engagement and diversification precede measurable increases in gambling-related problems (Currie et al., 2021). These findings suggest that observed changes in gambling behavior may represent earlier behavioral shifts, underscoring the importance of continued surveillance as Rhode Island's gambling environment continues to evolve.

The increase in the number of gambling types endorsed suggests that young adults are engaging with a wider range of gambling activities. Prior research has shown that greater gambling breadth is associated with elevated gambling-related harm and future gambling problems, even after accounting for gambling frequency (Mazar et al., 2020; LaPlante et al., 2014; Phillips et al., 2013). These findings therefore point to increased exposure to gambling opportunities and a potential escalation in behavioral risk, even in the absence of immediate increases

in positive BBGS screens (Mazar, et al., 2020). Although some overlap may exist between gambling products and access modalities (e.g., app-based gambling and online casino gambling), sensitivity analyses excluding internet and app gambling from the gambling breadth measure produced substantively similar findings.

The results also highlight the growing role of digital and mobile gambling. Significant increases in sports betting, internet gambling, app-based gambling, and slot machine gambling reflect broader structural changes in the gambling landscape, where participation is increasingly mediated through smartphones and digital applications. These platforms enable continuous access, reduce barriers associated with traditional gambling venues, and integrate gambling into routine digital behaviors (Hing, 2022). The pattern of findings may also reflect differences in accessibility across gambling activities. The largest increases were observed among gambling forms that have become increasingly accessible through digital and mobile platforms, whereas participation in casino table games, instant scratch tickets, and betting on arcade/video games remained relatively stable. Together, these findings suggest that growth may be concentrated in gambling activities that are more easily integrated into digital environments.

Differences in the demographic composition of the two survey waves may also be relevant when interpreting these findings. Participants surveyed in 2024 were more likely to identify as cisgender heterosexual males, a demographic group that has been shown to have higher participation in certain gambling activities, particularly sports betting (Park et al., 2025). However, because all adjusted models controlled for sexual/gender identity, the observed increases in gambling behaviors are unlikely to be explained solely by demographic differences between survey years.

Increases in casino and other slot machine gambling should be considered in the context of Rhode Island's legalization of online and mobile casino gambling in March 2024 (Video Lottery Games, Table Games and Sports Wagering, 2023). Although the survey did not distinguish between in-person and online slot participation, concurrent increases in app-based and internet gambling suggest that some of this growth may reflect digital casino engagement. As gambling opportunities continue to move across physical and digital spaces, improved measurement of platform-specific participation will be important for future surveillance efforts.

Our findings are broadly consistent with research from several European jurisdictions that have experienced gambling market expansion and increasing availability of online gambling. Studies from countries such as the United Kingdom, Sweden, and Denmark have reported growth in online gambling participation and sports betting following regulatory changes and technological advancements that increased gambling accessibility. (Brown, et al., 2025; Håkansson, 2021; Wall, 2025). Although findings regarding gambling-related harms have been more mixed, these studies similarly suggest that increases in gambling participation may precede detectable changes in gambling-related problems and highlight the importance of continued surveillance as gambling markets evolve.

From a policy perspective, these findings emphasize the need for regulatory and public health strategies that address the structural features of modern, digitally mediated gambling environments. The observed increases in sports betting, app-based gambling, and internet gambling suggest that exposure and accessibility, particularly through mobile platforms, are key drivers of participation among young adults. As such, public health strategies should move beyond individual-level interventions and consider population-level regulatory measures. These may include stricter limits on gambling advertising and promotional content, especially within digital and sports media spaces where young adults are highly exposed (Di Censo, et al., 2024). In addition, structural safeguards such as mandatory loss limits, spending caps, and cooling-off periods may help mitigate harm by reducing the speed and frequency of wagering (Harris & Griffiths, 2017). Policies that limit continuous accessibility, particularly for high-risk online gambling

products, may also be warranted. Importantly, these considerations arise alongside a convergence between gambling and digital gaming environments, where features such as loot boxes, in-game wagering systems, and emerging prediction-style markets blur the distinction between entertainment and financial risk-taking (Vieira, et al., 2023; Viganola, et al., 2021; Wardle & Zendle, 2021). Public health agencies, including the World Health Organization, have raised concerns that these features may normalize gambling-like behaviors, particularly among young people (King, et al., 2014). As these products continue to evolve, and as their legal classification is increasingly contested, regulatory frameworks must adapt to ensure that emerging forms of digital wagering do not expand outside traditional oversight structures (Fisher, et al., 2025). Without adaptation, current regulatory approaches may underestimate the speed and scale at which digitally embedded gambling risks are emerging among young adults.

Although the present study cannot determine how gambling behaviors will evolve as online and mobile casino gambling become more established, our observed increases in gambling breadth and digital gambling participation underscore the importance of continued surveillance. Prior research suggests that increased accessibility and convenience may contribute to continued growth in participation, particularly among young adults (Hing et al., 2026). Ongoing surveillance will be important to determine whether these behavioral changes persist and whether they are accompanied by increases in gambling-related harms over time. Prevention and treatment efforts may need to adapt to address the unique features of online gambling environments, including continuous accessibility, targeted marketing, and ease of engagement through mobile devices.

5. Limitations

Several limitations should be considered when interpreting these findings. First, the repeated cross-sectional design does not allow causal inference or individual-level assessment of behavioral change over time. Importantly, online and mobile casino gambling was legalized in Rhode Island in March 2024, whereas the 2024 RIYAS assessed gambling participation over the previous 12 months. Consequently, much of the reported behavior may have occurred before legalization, and observed differences cannot be attributed directly to the policy change. Second, the data rely on self-reported gambling behaviors and may be affected by recall error or social desirability bias. Also, the BBGS is a brief screening instrument and does not provide a clinical diagnosis of gambling disorder. The relatively small number of participants with positive BBGS screens and the short interval between survey waves may also have limited statistical power to detect modest changes in gambling-related problems over time. The RIYAS uses a convenience sample recruited largely through social media and educational outreach and was not intended to produce population-representative estimates of Rhode Island young adults. Accordingly, findings should be interpreted as reflecting patterns within the study sample and may not generalize to the broader young adult population. In addition, some gambling measures may not fully distinguish between in-person and online participation, limiting interpretation of whether increases in certain gambling forms reflect venue-based or digital gambling. The survey also did not assess gambling-like mechanics within digital gaming environments (e.g., loot boxes or in-game wagering systems), which may represent an increasingly important pathway into gambling behaviors among young adults. The gambling type count measure assessed breadth of gambling involvement rather than gambling intensity. Although greater gambling breadth has been associated with elevated gambling-related harm, this measure did not capture gambling frequency, duration, expenditures, losses, or other indicators of gambling intensity. Consequently, increases in gambling breadth should not be interpreted as direct evidence of increased gambling intensity. Age-based eligibility restrictions may also have influenced participation patterns. Because legal age requirements vary across gambling activities, some participants may not have been

eligible to engage in certain forms of gambling during the study period. Consequently, observed differences across gambling types may partially reflect differences in legal access rather than differences in gambling preferences or behavior. Analyses restricted to ever gamblers should be interpreted cautiously, as this subgroup was defined by lifetime gambling experience whereas most gambling outcomes assessed behaviors occurring within the previous 12 months. Consequently, the subgroup may include individuals with varying levels of recent gambling involvement. Finally, the relatively short time interval between surveys may limit the ability to detect longer-term changes in problem gambling behaviors.

6. Conclusion

In conclusion, gambling behaviors among Rhode Island young adults shifted between 2022 and 2024 during a period of expanding gambling access. Although overall participation remained stable, engagement in several specific gambling forms—particularly sports betting and mobile-based gambling—increased, and young adult gamblers reported participation in a greater number of gambling activities. These findings suggest increasing diversification of gambling behaviors within a rapidly evolving digital gambling environment and highlight the importance of continued surveillance and responsive regulatory policies to protect young adults from emerging gambling-related harms. Regulatory approaches must keep pace with the innovative and rapidly expanding digital gambling landscape in order to prevent future gambling-related harms among young adults.

CRedit authorship contribution statement

Samantha R. Rosenthal: Writing – review & editing, Methodology, Funding acquisition, Formal analysis. **Jadyn N. Torres:** Writing – original draft. **Madalyn E. Lyons:** Writing – original draft. **Shayanne Silva:** Writing – original draft.

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Declaration of generative AI and AI-assisted technologies in the manuscript preparation process

During the preparation of this work, the authors used generative AI tools (including ChatGPT) to assist with language editing, structural organization, and refinement of written content. All AI-assisted output was critically reviewed, revised, and verified by the authors. The authors take full responsibility for the content, interpretation, and conclusions presented in this manuscript.

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Samantha Rosenthal reports financial support was provided by Substance Abuse and Mental Health Services Administration. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Data availability

Data can be made available by reasonable request to the Rhode Island Department of Behavioral Healthcare, Developmental Disabilities & Hospitals.

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